

Oil Sands Environmental Coalition

5 April 2017

Alberta Energy Regulator
Authorizations Review and Coordination Team
Suite 1000, 250 – 5 Street SW
Calgary, Alberta
T2P 0R4
E-mail: ARCTeam@aer.ca

Re: The Fort Hills Energy Corporation Tailings Management Plan for the Fort Hills Mine OSCA Application 1881219

Dear Authorizations Review and Coordination Team:

I am writing on behalf of the Oilsands Environmental Coalition (OSEC) regarding the proposed Fort Hills Energy Corporation (FHEC) *Application for Directive 085* to seek approval from the Alberta Energy Regulator (AER) for fluid tailings volumes profiles and a Tailings Management Plan (TMP) for the Fort Hills Oil Sands Project (hereinafter the "Proposed Project"). Pursuant to Section 13 of the Oil Sands Conservation Act (OSCA), this letter is submitted as a Statement of Concern from OSEC regarding the Proposed Project.

OSEC is a coalition of Alberta-based environmental organizations with a long-standing interest in environmental issues associated with oilsands development. OSEC is comprised of the Fort McMurray Environmental Association (FMEA) and the Pembina Institute. Members of OSEC have a legal interest in recreational lease lands near the Settlement of Fort McKay, in close proximity (approximately 40 kilometers) upstream from the Proposed Project operations. The interest consists of a license to occupy lands on the McKay and Athabasca Rivers for recreational purposes, such as camping, boating and fishing. Members of OSEC are concerned that FHEC's Proposed Project will adversely impact water quality and quantity, wildlife species and terrestrial values, and recreational opportunities available to OSEC members.

We are concerned about the extent to which the Proposed Project meets the intent and objectives of the recently issued *Lower Athabasca Region – Tailings Management Framework for the Mineable Oilsands* (TMF), which comprises a policy direction intended to "manage fluid tailings volumes during and after mine operation in order to manage and decrease liability and environmental risk resulting from the accumulation of fluid tailings on the landscape."¹ FHEC's application for **OSCA Approval No. 9241** claims to comply with the *Tailings Directive 085: Fluid Tailings Management for Oilsands Mining Projects* (Directive 085), which was developed under the *Oilsands Conservation Act* (OSCA) and sets requirements for managing fluid tailings volumes for oilsands mining projects. We have several concerns regarding the sufficiency of this application in meeting the information requirements, fluid tailings management reporting, and

¹ Government of Alberta. 2015. *Lower Athabasca Region Tailings Management Framework for the Mineable Oilsands (LARP TMF)*, p.1.

surveillance and compliance processes stipulated by the Directive. In this regard, we have prepared a preliminary list of questions and concerns that we would like to bring to the Director's attention.

1. Identify why you believe you may be directly and adversely affected by a decision of the AER on the application(s)

All members of OSEC are directly and adversely affected by a decision of the AER on the application(s) cited herein. OSEC has an interest in lands near Fort McKay and in close proximity to the Proposed Project. The interest consists of a license to occupy lands on and near the McKay and Athabasca Rivers for recreational purposes, such as hiking, bird watching, camping, swimming and boating. Consequently all employees from Pembina and members of FMEA will be directly affected relative to their potential recreation activities on the recreation-leased lands.²

The Proposed Project would be located roughly 80 kilometers north of Fort McMurray, Alberta and about 25 kilometers north of Fort McKay. Given its close proximity to Fort McMurray and Fort Mackay, individual members of FMEA are directly and adversely affected by the Proposed Project. As all members of OSEC have an interest in recreational lands near Fort McKay, they will be affected by environmental impacts in this region resulting from the Proposed Project.

While emphasizing that it will first and foremost be directly and adversely affected by a decision of the AER on the FHEC application, OSEC contends that it also meets the requirements for participation as a genuine interest intervener, as set out in the recent changes to intervener status procedures under the auspices of the AER's enhanced participation pilot program for Directive 085 applications. As such, **Appendix A** has been included to demonstrate OSEC's supplementary eligibility for genuine interest intervener status, in addition to its primary eligibility to participate as directly and adversely affected.

2. Identify the nature of your objection to the application(s)

FHEC's TMP for the Proposed Project is submitted in accordance to Directive 085. OSEC has concerns regarding the Proposed Project's commitment to progressive reclamation, proposed fluid tailings profiles, proposed water capped tailings, proposed contingency planning, and proposed RTR criteria. Moreover, OSEC has concerns regarding AER procedures for ensuring industry-wide best practices in tailings management in alignment with Directive 085 and the TMF.

These concerns are described in more detail below.

² These lands are legally described as:

- a. all those portions of lots 1-4 which lie generally north and east of the left bank of the MacKay River;
- b. portions of sections 25 and 26; Township 94; Range 11; Meridian 4;
- c. LSD 16; section 27; Township 94; Range 11; Meridian 4; and
- d. LSD 1; section 34; Township 94; Range 11; Meridian 4.

I. *Commitment to progressive reclamation*

OSEC is concerned about FHEC's commitment to progressive reclamation. The stated objective of the TMF, as indicated in Sections 3.4 and 5.0 is:

[To minimize] fluid tailings accumulation by ensuring that fluid tailings are treated and reclaimed progressively during the life of the project and all fluid tailings associated with a project are ready-to-reclaim within 10 years of the end of mine life of the project. The objective will be achieved while balancing environmental, social, and economic needs.

Correspondingly, Section 4.4 of Directive 085 stipulates that new and legacy fluid tailings must be treated and progressively reclaimed *during* the life of project. FHEC's TMP states that fluid tailings treatment will commence in 2023, six years after operations commence. However, reclamation activities of fluid tailings are not expected to commence until after mining operations are entirely complete. OSEC contends that this meets neither the stated objective of the TMF nor the aforementioned requirement of Directive 085 for progressive reclamation during the life of the project.

Moreover, Section 3.3 of the TMF states that plans should minimize environmental effects now and for future generations. Since all tailings are to be contained in one DDA, no tailings will begin to be reclaimed – nor associated liabilities relieved – until 10 years after end of mine life (EML). This is a very high risk approach in that it leaves very little flexibility to mitigate against any uncertainties and potential unforeseen circumstances that may arise within the reclamation processes. This is particularly concerning since the company will no longer be generating revenue at the proposed juncture at which reclamation is scheduled to commence.

II. *Proposed fluid tailings profile*

OSEC has concerns with FHEC's proposed fluid tailings profile. Section 5.2.1 of the TMF for "Phase I – Early Production" states that projects must manage an inventory of fluid tailings that is in the range of the volume that is expected to be produced during 3-10 years of full production, depending on site-specific circumstances. In FHEC's proposed profile fluid tailings volumes will continue to rise until 2035. Based on anticipated annual fluid tailings production of 18Mm³, this constitutes 7 years of full production accumulation and therefore complies with the Directive's requirements. However, OSEC contends that allowing 18 years of growth contradicts the intent of the TMF and demonstrates an insufficient effort for aggressive fluid tailings treatment.

Requirement 8a in Section 4.4 of Directive 085 requires that fluid tailings volume profiles must be presented in both graphical and table formats. This data is provided, but only in five-year intervals after 2026. While OSEC understands there may be some pre-production uncertainties, access to annual data is important and necessary for the sake of comprehensive analysis.

Furthermore, OSEC has observed an apparent discrepancy between the graphic and the numbers provided in Table 5-2. The graphic appears to suggest that between 2021 and 2026 fluid tailings generation will reach roughly 35Mm³, while Table 5-2 states that fluid tailings generation will not exceed 19Mm³ in this period. Clarification is sought regarding this discrepancy.

Finally, Table 2-10 and 6-2 in FHEC's TMP proposes thresholds and limits. Based on these tables, FHEC has interpreted the Profile Deviation Trigger in Directive 085 on a *rolling* five-year average. OSEC contends that this is neither reasonable nor accurate, as a rolling trigger would prevent expedient management responses. Rather, the Profile Deviation Trigger should be based

on the results of fixed annual measurements. Additionally, FHEC has proposed an EML Target of 90Mm³, which appears to be based on five times their average annual fluid tailings production of 18Mm³. OSEC recommends that this target should instead be 64Mm³, based on actual EML volumes as represented on Page 34 of the TMP.

III. Proposed water capped tailings

OSEC is concerned by FHEC's selections in fluid tailings treatment technologies, in particular the plan's primary reliance on water capped tailings. Requirement 10 in Section 4.6 of Directive 085 states the following:

The application must justify the technologies proposed and provides details including:

- a) map of proposed treatment areas;
- b) description of the technology, including robustness, practicality and stage of development;
- c) timing and milestones for each technology;
- d) process flow diagram;
- e) chemical and physical properties of treated tailings and recovered water; and
- f) management of off-spec materials.

As outlined in Section 3.2.1 and on Page B-8 of the TMP, FHEC has proposed a 70m deep final deposit that is to be water capped. OSEC contends that the description of this technology provided in the TMP is broadly insufficient and does not meet the aforementioned Directive 085 requirements. Additionally, FHEC has proposed to use in-line treatment prior to water capping the tailings. OSEC contends there are insufficient details about this technology in the TMP, and requests that more information be provided.

Moreover, Page 39 of the TMP states:

The use of solid-liquid separators as a secondary FT treatment method is expected to deliver a product with similar qualities when compared to in-line treatment. For this reason this technology has not been included as the basis of the plan.

OSEC contends that this argument is insufficient to justify the stated technology choice, and more detailed information is therefore sought. Relatedly, while FHEC argues that they plan to leverage the experience of Suncor Energy Inc. with in-line treatment and DDAs, the size and depth of the proposed deposit is unprecedented. More detailed analysis on these decisions, per the components delineated within Requirement 10 of Directive 085, is accordingly warranted.

Furthermore, Section 3.2.2.1 and Table 3-2 of FHEC's TMP provides a comparison of above grade and below grade DDAs. However, the type of treated tailings in the two scenarios appear to be different. In the above grade DDA treated tailings are anticipated to dewater principally due to atmospheric drying and freeze-thaw cycles, while in the below grade DDA treated tailings will be stacked. OSEC subsequently questions the extent to which this is a fair comparison when the treated tailings in each scenario will have highly divergent properties. In fact, OSEC contends that increased drying for the above grade tailings could result in better outcomes, due to it having more predictable behaviour over the long-term (i.e. less settlement and less variable dewatering rates). However, this potentiality is not reflected in the comparison that is currently provided

IV. Proposed contingency planning

Sections 5.2.1 and 5.2.2 of the TMF stipulate that plans must identify contingency plans to manage risk, and that until new technologies are determined to be successful treatments, plans will be required to consider alternatives. Correspondingly, Requirement 12 in Section 4.6 of Directive 085 specifically emphasizes that where water capped tailings technology is proposed, the application must identify an alternative treatment technology. Contrary to these requirements, however, FHEC does not provide viable alternative treatment technology to the proposed water capped tailings in DDA3. Firstly, Page 30 states "terrestrial closure has longer reclamation milestones due to settlement time and this is one of key reasons aquatic closure is the basis of the plan." As such, the deep deposit will be placed with minimal plans to encourage accelerated dewatering and settlement *during* operations. Subsequently, Pages 44-45 of the TMP states:

For the next 60 (starting 10 years after EML) or more years, the deposit will continue to settle. Through active management, impoundments of water would be minimized so that they would not compromise the closure landscape. Active management, through the addition of material (10 to 40 m) will be required to ensure the surface drainage is not compromised and will be done over the first 10 to 20 years. For the next 5 to 20 years the settlement will be observed to ensure it is progressing as expected.

OSEC contends that this approach renders the proposed alternative technology option effectively unviable. The significant amount of settling ultimately renders the only feasible closure landscape as aquatic. It is unreasonable that for the contingency plan to be actionalized as potentially needed in the future, the landscape would then need to be amended and monitored for 70 years after operations cease. Rather, alternative technology choices that will more comprehensively treat the fluid tailings *during* project operations should be made to render the contingency plan truly viable if and/or when it might be necessary.

Relatedly, Requirement 13f in Section 4.7 of Directive 085 stipulates that applications must identify critical milestones for each deposit including deposit preparation, commencement of fluid tailings placement, capping, and commencement of further reclamation activities. OSEC contends that FHEC's proposed decision point in 2069 for water versus terrestrial capping of DDA3 is too far into the future. Rather, deposit performance should be evaluated on an ongoing basis, and FHEC must be able to predict and plan for final outcomes significantly sooner.

Furthermore, Requirement 16 in Section 4.8 of Directive 085 stipulates the following:

The fluid tailings management plan must describe uncertainties (nature and magnitude) associated with the environmental effects and mitigation measures during operation, reclamation, and closure stages. If there is a high level of uncertainty, describe:

- a) the nature of the uncertainty and the impact of associated failures,
- b) mitigation measures or contingency plans for how the uncertainties will be addressed, and;
- c) timelines and milestones for fluid tailings research to address uncertainties.

OSEC contends that while there is significant uncertainty regarding water capping in DDA3, especially regarding its significant size and depth, this was not explored sufficiently in the application. Moreover, as previously noted, there has not been a viable plan proposed for getting to a terrestrial landscape if water capping is unfeasible. The existing proposal that requires 70 or more years of settlement is simply not acceptable. Rather, active intervention must be taken

during operations to increase dewatering and settlement, such that by ten years after EML reclamation activities can be substantively undertaken.

Finally, OSEC would like to commend FHEC on its assessment of the viability of mixed landforms in the final landscape, particularly in terms of terrestrial to aquatic ratios in various climate scenarios per the projections of IPCC models. This approach was very comprehensive in its sensitivity to addressing long-term risks and potential regional outcomes.

V. Proposed RTR criteria

OSEC is concerned about the sufficiency of the RTR criteria proposed in FHEC's application. Requirement 13b in Section 4.7 of Directive 085 stipulates that applications must identify and justify the proposed performance indicators for each deposit. In Table 2-5 of FHEC's application the choice of RTR criteria are detailed, specifically as: clay-water ratio >0.5; and, total suspended solids <500g/ml. While these criteria ostensibly constitute a reasonable goal for RTR, OSEC seeks more information regarding what the expected values of the suggested performance criteria will be during various stages of deposit development from the RTR to RFR to reclamation stages. For instance, the following elements should be comprehensively described:

- a) How TSS values can be expected to change after deposition
- b) How lower layers can be expected to behave as treated tailings are progressively layered
- c) How the performance of deeper layers of treated tailings will be monitored over time

Relatedly, Figure 2.10 in FHEC's application constitutes a strong overview of expected water quality values over time. However, OSEC requests that a more detailed time scale be additionally explored to ensure the anticipated performance improvements are in fact reasonable.

Finally, OSEC would like to commend FHEC on the level of detail included within Table 2-7, which provides excellent and detailed timelines for RTR to RFR to reclamation. This component has been deficient in many of the other submitted TMPs, and was very well executed here.

VI. Ensuring best practices in tailings management

OSEC is interested in ensuring that all companies are using best practices in addressing tailings management and that operators will be held to similar standards. Correspondingly, the Pembina Institute is currently conducting an ongoing industry-wide analysis of all submitted Directive 085 applications. On March 24, 2017 the Pembina Institute additionally submitted feedback to the AER in the *Draft Directive 085* comment form that outlined industry-wide recommendations for the implementation of the new regulations. The full comment form with all of the Pembina Institute's recommendations, as submitted on March 24, 2017, is included in Appendix B for ease of the reviewers' reference.

Most pertinent to FHEC's application, one of the recommendations made was for an **enhanced review process or joint hearing** on all the TMPs submitted to date, to ensure cumulative volumes and proposed treatment criteria are reviewed and agreed to collectively. OSEC asserts that stakeholders' ability to determine the adequacy of FHEC's plans are dependent on an assessment that the sum of the approved tailings plans are consistent with the TMF's objectives. As such, it is essential for regulators and stakeholders to compare all tailings plans in conjunction to ensure responsible regulatory decisions are made. We thereby strongly recommend that no applications be approved until all proponent plans have been comprehensively reviewed.

3. Identify the outcome of the application you advocate

At this time, OSEC submits that FHEC's TMP application for Directive 085 is incomplete. OSEC correspondingly requests that FHEC provide the aforementioned additional evidence and amendments to increase confidence regarding the Proposed Projects' compliance with Directive 085. In order to fulfill its mandate to ensure safe, efficient and responsible development of Alberta's natural resources, the Alberta Energy Regulator should request additional information from the proponent before proceeding to a hearing. OSEC wishes to work with FHEC and the AER to comprehensively address the deficiencies and impacts outlined above and review the cumulative tailings trajectory expected from approval of this and other applications.

4. Identify the location of your land, residence, or activity in relation to the location of the energy resource that is the subject of the proposed application; and your contact information including your name, address in Alberta, telephone number, e-mail address or, if you do not have an email address, your fax number.

The Pembina Institute and the Fort McMurray Environmental Association have signed an agreement with Fort McKay Metis Local #63. The lands in the agreement are partially adjacent to the McKay River and are legally described as:

- a. all those portions of lots 1-4 which lie generally north and east of the left bank of the MacKay River;
- b. portions of sections 25 and 26; Township 94; Range 11; Meridian 4;
- c. LSD 16; section 27; Township 94; Range 11; Meridian 4; and
- d. LSD 1; section 34; Township 94; Range 11; Meridian 4.

The contract lands are approximately 25 kilometers upstream from the Proposed Project. The recreational agreement provides that OSEC members may access the contract lands to recreate (i.e hiking, camping, swimming) providing one week's prior notice is offered to Fort McKay Metis #63.

The Oilsands Environmental Coalition (OSEC) is an unincorporated coalition of Alberta public interest groups and individuals with a long-standing interest in the Athabasca Oilsands area. OSEC was formed to facilitate more efficient participation in the regulatory approvals processes for oilsands applications. Its current members include the Fort McMurray Environmental Association (FMEA) and the Pembina Institute.

Fort McMurray Environmental Association (FMEA)
260 Grandview Crescent
Fort McMurray, Alberta
T9H 4X8
Attention: Ann Dort-MacLean
girlsinc@telus.net

FMEA consists of residents living in and around Fort McMurray who are concerned about the effects of oilsands development on human health, the ecosystem and the socio-economic quality of life in the municipality of Wood Buffalo. As of 2012, FMEA had 37 members.

The Pembina Institute
219 19 Street NW
Calgary, AB
T2N 2H9

The Pembina Institute is a non-profit environmental research organization founded in Alberta in 1985. One of its objectives is to minimize the environmental impacts associated with fossil fuel development in Alberta. It has monitored the health and environmental implications of oilsands development since the mid-1980's and has been particularly active in the assessment and management of long term, chronic, and cumulative impacts.

Conclusion

This Statement of Concern should be considered preliminary rather than final and conclusive. OSEC retains the right, upon further analysis of the project proponent's regulatory filings, to bring new issues to bear in a regulatory setting. OSEC is interested in working with FHEC to attempt to resolve these important issues and we seek a formal ADR process and forum to support this assessment.

Sincerely,



Jodi McNeill
Analyst, Responsible Fossil Fuels
Pembina Institute
On behalf of the Oil Sands Environmental Coalition

cc
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Attention: Jason Heisler
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Appendix A

OSEC should be permitted to participate in the process because it is directly and adversely affected by the application, as set out in the preceding Statement of Concern. In the alternative, OSEC should be permitted to participate because it also meets the requirements for participation as a genuine interest intervener, as set out herein.

The following three sub-sections provide an overview of how OSEC meets the requirements of participation as a genuine interest intervener, in addition to being directly and adversely affected.

1) Provide a concise explanation of how your participation will materially assist the AER in making a decision on the application (e.g., you can provide project-specific, detailed technical information).

OSEC is a coalition of Alberta-based environmental organizations with a long-standing interest in environmental issues associated with oilsands development. OSEC is comprised of the Fort McMurray Environmental Association (FMEA) and the Pembina Institute.

Since the Public Notice of Application in late September, OSEC has been actively reviewing the proposed FHEC tailings management plan. The Pembina Institute's review of the Proposed Project have included both detailed technical analyses of the proposed TMP and comparative analyses from an industry-wide tailings management perspective. The products of both analyses are expected to contribute meaningfully in assisting the AER's decision making process for this application. The preceding Statement of Concern provides an overview of the nature of OSEC's research, analysis, and perspectives on this file.

2) Provide a concise explanation of how you have a tangible interest in the subject matter of the review (e.g., you participate on committees or are involved in other activities related to oil sands tailings).

For over 30 years members of OSEC have demonstrated a genuine interest in promoting sustainable development in Northern Alberta, overseeing responsible oilsands exploration and development, and managing the cumulative environmental impacts of oilsands mining.

In particular, the Pembina Institute's experience in researching and reporting on Alberta oilsands tailings includes: five major technical research publications on tailings management from 2008-2013; leadership in designing and facilitating multi-stakeholder initiatives intended to manage cumulative impacts of tailings; participation in numerous government consultation processes, including processes specific to tailings; membership in the AER's 2015-16 Technical Advisory Committee for Tailings Regulatory Management; and participation in the 2016 Water Management Working Group hosted by the Government of Alberta.

3) Provide a concise explanation of how your participation will not unnecessarily delay the review.

OSEC has earned a reputation for providing substantive and well-researched perspectives that add value to regulatory processes. Members of OSEC are routinely contacted by media, industry,

and governments both in Canada and abroad for comments and insights that are highly credible, well-researched, and fair.

The principle objective of OSEC for participating in the review of this application is to ensure that concerns are addressed in the most comprehensive and efficient manner possible. Correspondingly, OSEC is currently in bilateral discussions with the AER to promote the adoption of ADR processes and forums at an industry-wide level, in order to prevent unnecessary interferences with the regulator's concurrent review of all D085 applications.

Appendix B

Draft Directive 085 Comment Form as Submitted March 24, 2017



Submit form by email to tailingsdirective@aer.ca. To create a new row, place your cursor at the end of the text in the last box and hit tab.

Section and page number	Issue	Possible solution or recommendation	Rationale to support solution or recommendation
<p>Section 2.1 Fluid Tailings Profiles and Thresholds <i>Pages 6-7</i> <u>AND</u></p>	<p>As the Directive states, "the TMF identifies the fluid tailings volume profile will be managed by three types of thresholds, which demarcate four fluid tailings management levels." We contend there should be additional emphasis placed on Profile Deviation since the End Mine Life Volume Limit and Total Volume Trigger are less relevant in ensuring ongoing management of the profiles for older mines, as demonstrated in the TMPs submitted for the November 2016 deadline.</p>	<p>Recommended additions are in blue.</p> <p>Triggers and Limits*</p> <ol style="list-style-type: none"> 1) Profile Deviation Trigger = Fluid Tailings volume has exceeded the approved profile by 20 per cent 2) Total Volume Trigger = 100 per cent of End of Mine Life Volume 3) Profile Deviation Limit = Fluid Tailings volume has exceeded the approved profile by 40 per cent 4) Total Volume Limit = 140 per cent of End of Mine Life Volume 	<p>The TMF and D085 define two triggers and one limit with four levels of management action. These original parameters were developed assuming different tailings production and management profiles than what we are seeing in the actual plans. Specifically, when the TMF was written it was assumed that all FT profiles would adhere to a 'trapezoid' trajectory, and the End Mine Life (EML) volume was therefore to be used as a target.</p>
<p>Section 10 Performance Evaluation, Compliance, and Enforcement <i>Page 31-32</i></p>		<p>*To be calculated based on one year's actual FT compared to the approved profile FT, using proven technologies only</p> <p>Four Management Levels</p> <ol style="list-style-type: none"> 1) Level 1 <ul style="list-style-type: none"> • Projects are operating in line with their approved fluid tailings profile. 2) Level 2 <ul style="list-style-type: none"> • Profile Deviation Trigger is exceeded 3) Level 3 <ul style="list-style-type: none"> • Profile Deviation Trigger is exceeded for second year in a row, Profile Deviation Limit is exceeded, or Total Volume Trigger is exceeded 4) Level 4 <ul style="list-style-type: none"> • Total Volume Limit is exceeded 	<p>For the majority of operators this model still applies, however the fluid tailings profiles for some of the longer-operating mines are now on a downward trajectory. In such cases, the EML volume is simply not a useful yardstick. Therefore, we contend that the EML volume may be one parameter to consider, but the Profile Deviation Trigger is far more critical.</p> <p>Subsequently, we suggest including an additional limit and redefining Level 3 to better reflect the submitted TMPs.</p> <p>We emphasize that all calculations should be based on one year's actual FT compared to the approved profile FT, as some TMPs have made these calculations on a rolling basis. Moreover, we advocate for the use of proven technologies only, in alignment with <i>page 23</i> of the TMF where it states, "the End of Mine Target will not be different than targets set with proven technology."</p>

Section 10.3

Compelling Compliance

Pages 37-38

The Draft Directive states that ICAF and Manual 013 will guide the AER for compliance and enforcement.

The Directive states, "the AER will employ the procedure described in Manual 013 when a noncompliance is identified" and, in addition, "the TMF provides a range of management actions for each type of threshold exceedance as described in sections 6.1 and 6.2 of the TMF." Further, as "each site's circumstance differs, the AER will consider a number of factors in considering its management response to threshold exceedance."

The AER has defended this as one component of a 'flexible and proactive' approach to tailings management. We argue that flexibility and adaptive management are good tools prior to non-compliance. However, in the event of non-compliance, consequences should be clear, universal, pre-determined, and stringent.

Recommended prescribed management actions for each level of non-compliance are **in red**.

Four Management Levels

- 1) Level 1
 - Projects are operating in line with their approved fluid tailings profile.
- 2) Level 2
 - Profile Deviation Trigger is exceeded
 - **Recommended penalty: a security of \$300/m³ of FT that exceeds the profile posted to the Mine Financial Security Program (MFSP).**
- 3) Level 3
 - **Profile Deviation Trigger is exceeded for a second year in a row, Profile Deviation Limit is exceeded**, or Total Volume Trigger is exceeded.
 - **Recommended penalty: security of \$300/m³ of FT that exceeds the profile posted to MFSP. Production curtailment until tailings are back in alignment with approved profile.**
- 4) Level 4
 - Total Volume Limit is exceeded
 - **Recommended penalty: security of \$300/m³ of FT that exceeds the profile posted to MFSP. Production curtailment until tailings are back in alignment with approved profile. Compliance levy of \$100/m³.**

***If profile is exceeded consistently for three or more years in a row but remains below 20 per cent threshold, proponent should be subject to Level 2 management actions.**

We advocate for **clear, universal, pre-determined, and stringent** consequences aligned with the Directive's four management levels. Penalties should be sufficiently severe to: (1) incent proponent performance; and, (2) ensure the province collects sufficient security to ensure Albertans do not incur the liability.

The Directive was designed for TMPs to be based on proponents' site-specific proposals. Subsequently, there is significant flexibility built in to the essential criteria against which compliance will be measured. Additionally providing flexibility in enforcement is both excessive and unreasonable.

The public, industry, and the AER expect the plans to be sufficiently realistic, ambitious and effective. Strong consequences for non-compliance will act as a deterrent, and provide a significant communications tool to build public trust. Transparency and trust building are especially relevant due to the failure of the AER to enforce Directive 074.

We selected the metric of \$300/m³ of FT by multiplying the average cost to treat a cubic meter of FT (i.e. \$30/m³) by a factor of 10. This is based on the precedent set by SGER, wherein non-compliance penalties are determined as 10 times the average cost of compliance.

We additionally recommend that these compliance details and mandatory requirements be included in the Regulatory Details Plan of the Lower Athabasca Regional Plan. This would render compliance enforceable under the Alberta Land Stewardship Act as well as the Oil Sands Conservation Act.

Section 8.8.2**Water-Capped
Fluid Tailings***Page 30***Contingency plans**

All but one proponent proposed water-capped tailings in their TMPs as submitted for the November 1, 2016 deadline, with profoundly insufficient contingency plans.

Proposing water-capped fluid tailings without adequate contingency plans directly contradicts the following requirements of Directive 085:

- Requirement 11 in Section 4.6: Applications must describe uncertainties, mitigation measures and contingency plans for unproven technologies.
- Requirement 12 in Section 4.6: Where water-capped tailings technology is proposed, the application must identify an alternative treatment technology.

Profiles based on proven technologies

Page 30 of the Draft Directive states that until the AER receives policy direction from the Government of Alberta to develop a regulatory approach to water-capped fluid tailings, this technology "may be used to generate the inventory forecast in the profiles provided the fluid tailings management plan includes an alternative technology option, including timeframes for implementation."

This approach is highly problematic and high risk. We contend that designing profiles based on technically unproven, unregulated, and experimental technologies (such as water capping) should not be permitted.

Recommendation for contingency plans

We support the AER's March 17 decision on the Suncor Millennium Mine application. This was an encouraging step in demonstrating the AER's commitment to implementing the Directive as written, with appropriate caution paid to unproven technologies.

We recommend that the letter of the law, as per the TMF and Directive 085, continue to be stringently upheld in the review of all subsequent applications. Namely, we expect to see that adequate contingency plans are equally required from all other operators. The problems the AER cited with Suncor's plan were neither unique nor worst-in-class relative to the sum of other operators, but rather representative of problematic industry-wide trends seen in all submitted TMPs to date.

Recommendation for profiles based on proven technologies

Further, in contrast to the direction provided in Directive 085 (relevant excerpt highlighted in left column), we argue that any approved FT profiles should NOT be based on water capping or any other unproven technologies.

Instead, we submit that **only** treatment options that are commercially proven and approved by the AER should be the basis of profiles.

Essentially, we recommend that the comprehensive contingency plans required from proponents per Directive 085 stipulations should be used to develop the profiles in any cases where water capping or other experimental technologies are proposed.

Rationale for contingency plans

Plans must be adequately realistic to ensure FT are dealt with in reasonable timelines to establish self-sustaining, locally common boreal ecosites. Until end pit lakes are proven or disproven we need confidence that we can reach final closure outcomes.

Rationale for profiles based on proven technologies

Individual proponents' tailings profiles will form the backdrop against which their performance will be evaluated. Therefore, these tailings profiles must be sufficiently realistic. The key to ensuring strong management of FT in Alberta under Directive 085 is: (1) defining strong RTR criteria, and (2) basing the profiles on proven technologies.

Water capping is not an acceptable technology to base decades long fluid tailings profiles on. The intent of the TMF was to ensure there would be no more than five years of tailings at EML, so that all tailings could meet RTR criteria within ten years. The integrity of this design is entirely reliant on profiles being based on viable technologies.

Section 8.4
Performance
Criteria

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Ready to Reclaim (RTR) criteria are a critical component of the Directive, yet in applications submitted to date the criteria proposed have been largely weak and absent.

Moreover, there is a significant degree of variation in the quality of fluid tailings being proposed for removal from inventories as RTR by various proponents.

Stakeholders want confidence that the criteria being agreed to is transparent, stringent, and consistent across industry. The current approach where the onus is on operators to develop and justify their criteria is not resulting in desired outcomes, as demonstrated in the recently submitted TMPs.

We suggest a formal re-evaluation of how RTR criteria are being developed, with more guidance solicited from policymakers.

Specifically, we recommend that the GoA and AER develop a suite of Ready-To-Reclaim measures for each type of end-landscape (terrestrial, aquatic and wetland). For each of those measures, a range of acceptable values to get from RTR to RFR should also be defined, recognizing that each deposit may start out at different points within the range and may progress along the trajectory at different rates. This exercise must be done urgently, before any TMPs are approved by the AER.

Additionally, we propose an **enhanced review process or joint hearing** on all the TMPs submitted to date, to ensure all RTR criteria are reviewed and agreed to collectively.

We contend that the inadequate RTR criteria demonstrated in the majority of TMPs submitted for the November 2016 deadline may be indicative of the AER's approach to RTR criteria failing. Setting prescribed parameters for various end-landscape ecosites would help to address this problem.

More clear prescriptions for acceptable RTR criteria could additionally address the problem of the extreme variation of fluid tailings treatment and reclamation timelines, as seen in the submitted TMPs. If parameters for RTR criteria were more clearly delineated, progressive reclamation could be better ensured by preventing the removal of fluid tailings from inventories sooner only to reach reclamation stages much later.

Moreover, criteria for each type of deposit should be the most stringent possible and be applied consistently and transparently across industry. A joint review process is one mechanism to ensure this. This could additionally provide an inclusive forum to evaluate cumulative tailings management, and assess whether the intent and objectives of the TMF are being sufficiently met by the sum of all Directive 085 applications.

Section 8.6
Operations
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Section 8.6 of the Directive states, “if the treated tailings are meeting the RTR performance criteria, they can be removed from the fluid tailings inventory because they are on a clear trajectory to meeting long-term reclamation outcomes. In circumstances where performance criteria are no longer met or there is a deviation from the expected trajectory, operators must identify the volume not meeting the performance criteria and the degree of nonperformance.”

We contend that this description is insufficient, and should be elaborated upon further in an Appendix, to delineate the details the AER expects to receive in applications as well as in annual reports.

Appendix 3 contains a table for managing FT. We suggest that another table be included for managing performance of treated tailings from each deposit. This should include proposed RTR criteria by year compared to actual performance.

More detailed descriptions of RTR performance criteria would better ensure that Sub-objective 1 is met (i.e. the deposits physical properties are on a trajectory to support future stages of activity).

This relates to our broader concerns about the insufficient RTR criteria demonstrated in the TMPs submitted for the November 2016 deadline, as described on *page 4* of this submission.

Section 8.4
Performance
Criteria

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The regulatory approval and monitoring process for Ready-For-Reclamation (RFR) is neither sufficiently defined nor transparent at this juncture.

There have been highly variable interpretations of what constitute 'reasonable' timelines to get from RTR to RFR by proponents in their TMPs, as submitted for the November 2016 deadline. This suggests that clearer parameters need to be delineated.

To ensure progressive management of FT and concrete steps are taken towards reclamation, some oversight is required for this stage of tailings management. Directive 085 provides essential expectations for timing in getting to the RTR stage, but supplementary direction is required for the processes of getting from RTR to RFR and reclaimed landscapes.

Treating tailings is absolutely critical, but this is only the first part of the process required to achieve self-sustaining, locally common boreal ecosites. The Mine Financial Security Program provides oversight over the reclamation phase. However, there is a major gap in monitoring the process of transitioning from RTR to RFR.

It states in **Appendix 2**, “where a progression of values is required in order to progress towards the next stages of reclamation, identify the trajectory of the values and identify the timeframe in which the values are to be met to meet the trajectory.”

We argue that this should be mandatory for all TMPs, and that a form of compliance and enforcement should be applied here as well.

Additionally, we suggest that the AER might consider requiring proponents to submit profiles for their RTR to RFR, and RFR to reclamation trajectories (similar to the FT to RTR profiles).

Proponents need to provide more detailed RTR criteria and the progressive measurements they expect over time to get to RFR (as reflected in our comments on *pages 4 and 5* of this submission). These values need to be monitored and, if found to be in non-compliance, penalties should be incurred.

While we understand that the policy gaps regarding reclamation and liability are meant to be addressed in separate policymaking processes to come, it is unreasonable for there to be no existing guiding principles for these critical components of the plans.

We advocate for the Government of Alberta to provide more adequate policy direction to the AER to address this gap, so that general parameters can be delineated for this extremely important phase of the mining operation.

<p>Section 10.2.2 Preventative Management Responses <i>Page 34</i></p>	<p>Section 10.2.2 of the Directive states, “the AER will work with the operator to prevent undesirable trends above the fluid tailings volume profile and deposit RTR timelines and identify any increased risk of:</p> <ul style="list-style-type: none"> (a) exceeding thresholds; (b) noncompliance with approval conditions; (c) not meeting reclamation milestones, and (d) noncompliance resulting from deficiencies in their fluid tailings management system or deviations from their fluid tailings management plan.” <p>We contend that this is insufficient, and that RTR criteria should be more clearly emphasized.</p>	<p>We recommend that this list include non-compliance with RTR criteria on an annual basis.</p>	<p>The lynchpin of Directive 085 is RTR criteria, and for it to be efficacious more clear emphasis on compliance and enforcement is imperative. Incorporating our suggestion would better ensure that the treated tailings are on a trajectory to RFR.</p>
<p>Section 12 Five-Year Review <i>Page 39</i></p>	<p>We are supportive of the five-year review, per the requirements of the TMF. However, the wording "every five years or as necessary" is ambiguous. We are concerned that this might imply the review could be interpreted as optional.</p>	<p>We suggest the amended wording, "every five years, or more frequently as necessary."</p>	<p>Our recommended rewording should provide more clarity in the interpretation of the five-year review protocol moving forward.</p>
<p>Section 10.1 Promoting Compliance <i>Page 32</i></p>	<p>We are very supportive of the initiatives described in this section, and would like to commend the AER for undertaking a proactive role in ensuring all the listed information will be publically available.</p>		